

<b>DART AEROSPACE LTD</b>	<b>Work Order:</b>	23469
<b>Description:</b> Crosstube Extrusion (OH-58)	<b>Part Number:</b>	D6005-128
<b>Dwg:</b> D6005 Rev. A	<b>Qty:</b>	18
		Page 1 of 1

Step	Location	Procedure	By	Date	Qty
1	DC	Issue Traveler	W	05-08-05	18
2	PG	Issue P/O: <u>7808430</u> a) Order as per Dwg D6005 b) Material: 2.750 x 0.375 wall 7075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11) seamless aluminum tube c) Minimum ultimate tensile strength = 77 ksi d) Minimum tensile yield strength = 66 ksi e) Tolerance are per ASTM B210 (see details on Dwg D6005) f) <b>Material certification required</b>	W	05-08-05	18
3	RG	Receive and Inspect for transit damage <b>Ensure Material certification is attached</b>	CL	05/10/31	18
4	QC6	Inspect Level 6 <b>Ensure Material certification comply to Dwg D6005</b>	J	05-11-17	18
5	FP	Chemical Conversion Coat as per QSI 005 4.1			
6	QC3	Inspect Chemical Conversion Coat			
7	ST	Identify and Stock	BS	05-11-17	18
8	AC	Cost / part: _____	W	05-11-17	
9	DC	Close W/O Inspect Level 21	FP	05-11-17	18

Rev	Date	Change	Revised By	Approved
A	00.11.21	New Issue	EC	
B	00.12.06	Added: Issue P/O	EC	
C	04.06.15	Added tolerance to Step 2	KJ/JLM	

**RELEASED**

05-11-17-06-16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA: LP Date: 6/18/08

NOTE: Date & initial all entries

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_



DESIGN <i>CP</i>	DRAWN BY <i>CP</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D6005	REV. A SHEET 1 OF 1
DATE 00.11.17	TITLE CROSSTUBE MATERIAL		SCALE 1:1
A	00.11.17	NEW ISSUE	

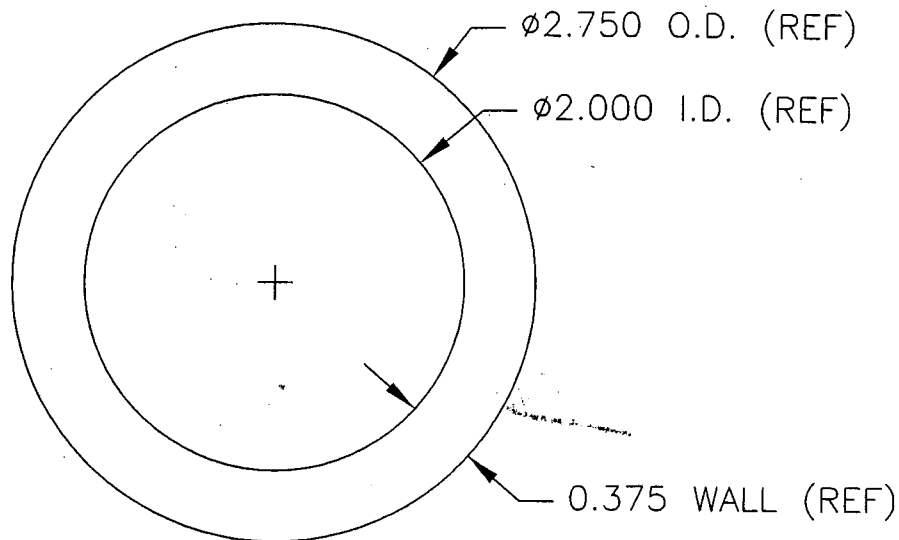
## SPECIFICATION CONTROL DRAWING

**RELEASED**  
00.11.24 *[Signature]*

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UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE

WORK ORDER  
NO. \_\_\_\_\_



### NOTES

- 1) D6005-XXX CROSSTUBE  
|  
LENGTH

WHERE XXX IS LENGTH IN INCHES  
EG. 128" LONG TUBE: D6005-128

- 2) MATERIAL: 2.750 OD x 0.375 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.  
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi  
MINIMUM YIELD TENSILE STRENGTH = 66 ksi
- 3) TOLERANCES ARE PER ASTM B210 AS FOLLOWS:  
O.D.:  $\pm 0.006$  MEAN ( $\pm 0.012$  INCLUDING OVALITY)  
WALL:  $\pm 0.015$  MEAN ( $\pm 0.038$  INCLUDING ECCENTRICITY)  
LENGTH: XXX  $+0.125/-0.000$   
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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# Job Costing Report

Dart Aerospace Ltd.  
Hawkesbury

Aug 04, 2005  
03:24 pm

Work Order No	: 0023969	Department Code:	
Project Name	: D6005-128	Burden Flags	: NNNNNNNN
Project For	: WK543	WO Status	: Open
Work Order Type	: Main	Invoice State	: Not Invoiced
Main WO Number	:	Invoice Date	:
House Part Number	: D6005-128	Invoice Number	:
Description	: Crosstube material	Invoice Amount	: 0.00
Manufactured	: Yes		
Amount Req'd	: 18	Order Entry No	:
Amount Done	: 0	OE Value	: 0.00
Start Date	: 08-04-05		
Est Finish Date	: 10-29-05	Est Margin	: 0.000%
Act Finish Date	:	Actual Margin	: 0.000%
Drawings Req'd	: No		
Ok for Approval	:		
Approval Rec'd	:	\$0 Posted to Finished Goods	

	Estimated	Actual	Var. %	Posted	To Post
Material Cost	0.00	0.00	0.00	0.00	0.00
Engineering Hours	0.00	0.00	0.00		
Engineering Cost	0.00	0.00	0.00	0.00	0.00
Production Hours	0.00	0.00	0.00		
Production Cost	0.00	0.00	0.00	0.00	0.00
Packaging Hours	0.00	0.00	0.00		
Packaging Cost	0.00	0.00	0.00	0.00	0.00
OverHead Hours	0.00	0.00	0.00		
OverHead Cost	0.00	0.00	0.00	0.00	0.00
CNC Hours	0.00	0.00	0.00		
CNC	0.00	0.00	0.00	0.00	0.00
Misc. Hours	0.00	0.00	0.00		
Misc.	0.00	0.00	0.00	0.00	0.00
Burden	0.00	0.00	0.00		
Total Cost	0.00	0.00	0.00		
Margin	0.000	0.000			
Selling Cost	0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done	0.00	0.00
Profits/(Loss)	0.00	0.00

**ALUnna****Abnahmeprüfzeugnis 3.1 - EN 10204:2004****Inspection Certificate 3.1 - EN 10204:2004 / Certificat de Reception 3.1- EN 10204:2004****Kunde:**

Dart Aerospace Ltd.

**Client:**1270 Aberdeen Street  
K6A1K7 Hawkesbury, ON Canada**Produkt:****Product / Produit:**Rohre nahtlos gepresst  
Tubes seamless extruded Tubes file sur aliguille**Spezifikation:****Specification:**

AMS QQ-A-200/11E; Spezifikation D6005

**Werkstoff:****Alloy/Alliage:**

7075

**Abmessung****Size / Dimension**

2,750" x 2,000" x 0,375" x 128,00"

**Zeugnisnummer:**

716/05

**Cert No.: / No. du certificat:****Bestellnummer:**

2008430

**Order No. / No. de commande****Auftrag:**

15301/5

**Our Reference/Notre Reference:****Zustand:****Temper/Etat**

T 6511

**Kennzeichnung****Marking/Marquage:**ALUnna - Cert No. 716/05 - T 6511 - Cast No. 79679 - QQA 200/11E - 2.750" OD X 0.375" Wall - Heat No. 85/09 -  
Lot 15301/5-1 - PO. 2008430**Lieferung****Delivered Material / Matériel délivré:**

pcs.

lbs

18

655

**1. Chemische Analyse****Chemical Analysis / analyse chimique**

Charge/ Cast No.	min. max.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
79679		0,40	0,50	1,2	0,30	2,1	0,18	5,1	0,20					
		0,079	0,154	2,0	0,046	2,9	0,28	6,1						
				1,47		2,48	0,188	5,73	0,034	0,004	0,030	0,001	<0,001	

Elements without indication &lt; 0,01 %

**2. Mechanische Eigenschaften****Mechanical Properties / Valeurs Mécaniques**

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Heat No.
min. max.	77,0	66,0				
1	88,015	81,635	10,0		173	85/09 - 18 pcs.

**Ergebnis der  
Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

**Test results:**

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

**Resultats:**

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

KroosD

26.09.2005

Certified acc. to DIN EN ISO 9001:2000, valid until 2006-03-09  
Certificate No.: 001959 QM**ALUnna**

Abnahmebeauftragter

## Jason Murdoch

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**From:** David Shepherd [davids@dartaero.com]  
**Sent:** November 9, 2005 9:28 AM  
**To:** Jason Murdoch  
**Subject:** Re: extrusion

The risk of corrosion is way down this time of year because the humidity is way down. Therefore, I don't see a problem holding off on the alodine for a few weeks until you have more time. With respect to the 412 Tri-beam stuff, I agree. I would just skip the alodining step and start machining it right away.

David

----- Original Message -----

**From:** Jason Murdoch  
**To:** davids@dartaero.com  
**Sent:** Tuesday, November 08, 2005 8:50 AM  
**Subject:** extrusion

Hi Dave,

We have a bunch of x-tube mat'l that came in and I was wondering since it's coated in a lubricant if it should be alodined within a certain time frame or if at all ? it's on the w/o so I think it should be but time is very unavailable at the moment. But my biggest concern is the tri-beam ends mat'l. I think that can wait seeing as it's a work in progress and trial and error in bending.

jmurdoch@dartaero.com

**Q.C. Inspector**